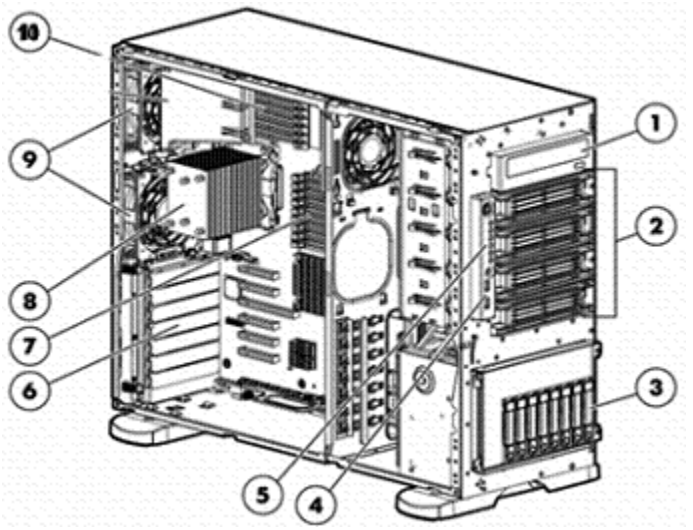
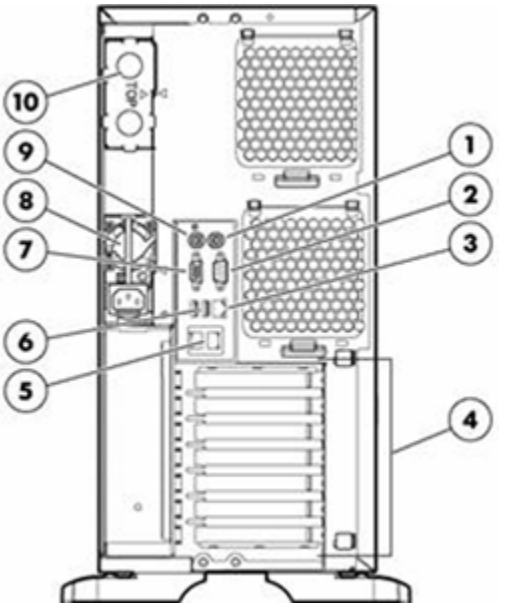
Overview





Front View:

1. SATA DVD ROM or DVD RW Optical drive
2. Four removable media bays
3. Eight SFF (2.5") (shown) or six LFF (3.5") SAS or SATA Hot Plug drive bays
4. USB connectors
5. LEDs: System power, Health, Power cap, NIC 1&2, UID
6. 6 Expansion slots
7. Nine DIMM slots (Processor 2): DDR3 Registered (RDIMM) or Unbuffered (UDIMM) memory
8. Processor heatsink
9. System Fan
10. Nine DIMM slots (Processor 1): DDR3 Registered (RDIMM) or Unbuffered (UDIMM) memory

Rear View:

1. Mouse port
2. Serial port
3. Dedicated remote management port
4. Expansion slots
5. Two Network ports
6. Two USB ports
7. Video ports
8. Power supply bay 1
9. Keyboard port
10. Power supply bay 2

What's New

- New BTO configuration which includes HP Insight Control suite software

At A Glance

Adaptable, reliable mainstay for your business.

The HP ProLiant ML350 G6 is the best price performance DP Tower server that delivers excellence with performance, expandability and availability. It's a new generation server with more memory capacity and more HDD expandability. It combines the latest Intel Xeon 5500 processors with QPI technology, best-in-class availability features, and unsurpassed flexibility in a system ideal for growing businesses and especially well suited to meet the needs of remote branch offices.

- Processors:
  - Two Quad-Core/Dual-Core Intel® Xeon® 5500 processors
  - Up to 6.4GT/s QPI system speed
  - Intel® 5520 chipset
- Memory:
  - 18 DIMM Slots
  -

Overview

- Up to 192GB, using PC3-8500R DDR3 Registered (RDIMM) memory, operating at 800MHz when fully populated at 2 DIMMs per Channel in 12 slots
- Up to 24GB, using PC3-10600E DDR3 Unbuffered (UDIMM) memory, operating at 1066MHz when fully populated at 2 DIMMs per Channel in 12 slots
- Two DIMMs Per Channel at 1333MHz supported with ROM update via ROM Based Setup Utility (RBSU) for 1333MHz RDIMMs. UDIMM support is only on 12-slot servers.
  NOTE: If only one processor is installed only half the DIMM slots are available.

- Storage Controllers:
  - Entry Models: HP Smart Array P410i/Zero Memory Controller (RAID 0/1/1+0)
  - Base Models: HP Smart Array P410i/256MB Controller (RAID 0/1/1+0/5/5+0)
  - Performance Models: HP Smart Array P410i/512 MB BBWC Controller (RAID 0/1/1+0/5/5+0/6)
  - Available upgrades: 256MB, 512MB with BBWC, Battery kit upgrade (for BBWC), and Smart Array Advanced Pack (SAAP)
- Internal Drive Support:
  - Up to sixteen SFF (2.5") or eight LFF (3.5") Hot Plug Serial Attached SCSI (SAS) or Serial-ATA (SATA) hard drives
  - Maximum of 8TB of internal storage capacity
- Network Controller:
  - Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
- Expansion Slots:
  - Six total expansion slots
  - One PCI-Express x16 Gen2 (x8 speed); One PCI-Express x8 Gen2 (x8 speed); Four PCI-Express x8 Gen2 (x4 speed)
  - Optional PCI-X Expander provides additional two 64-bit/100-MHz PCI-X slots by using a single PCI Express slot
- Ports:
  - USB 2.0 support
  - Six total ports: (2) front; (2) rear; (2) internal
  - SD connector: (1) internal
- Redundancy:
  - Optional Hot plug redundant power supplies
  - Support for optional redundant fan
- Power Sources:
  - Dual Common Slot Bay for Right Sized, Hot plug and Redundant Power options
    - HP 1200W CS HE Silver Power Supply (optional)
    - HP 750W CS HE Gold Power Supply (standard on some models)
    - HP 460W CS HE Gold Power Supply (standard on some models)
- Infrastructure Management:
  - Convenient slide-out Systems Insight Display for quick and easy front view server diagnostics, along with status LEDs, Automatic Server Recovery (ASR), ROM Based Setup Utility (RBSU)
  - HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 2 management processor) for simplified server setup, health monitoring and recovery, power and thermal control, and lights-out remote administration.
  - HP Insight Control (ICE) suites, as product options, deliver essential infrastructure management that can help save time and money by making it easy to deploy, monitor, control and optimize your IT infrastructure through a single, simple management console. ICE suites support both Windows and Linux-based servers and management consoles
  - HP Insight Dynamics - VSE suite for ProLiant servers, a product option, is an integrated command center that enables you to continuously analyze and optimize your adaptive infrastructure. This advanced infrastructure management software lets you reduce the cost of common data center tasks by as much as 40 percent while keeping pace with your changing business.
- Deployment/Serviceability:
  - Tool-free chassis entry and component access
  - Tool-free motherboard removal
  - Universal rail solution supporting both square and round hole rack environments
  - Customer Self Repair (CSR): HP products are designed with many CSR parts to minimize repair time and allow for greater flexibility in performing defective parts replacement

Overview

- Operating Systems and Virtualization Software Support for ProLiant Servers:
  - Supports Windows, RHEL, SLES, OEL, NetWare, VMware, and Citrix
- Security - Trusted Platform Module:
  - One (1) internal TPM 1.2 module connector
- Warranty:
  - This product is covered by a global limited warranty and supported by HP Services and a worldwide network of HP Authorized Channel Partners resellers. Hardware diagnostic support and repair is available for three years from date of purchase. Support for software and initial setup is available for 90 days from date of purchase. Enhancements to warranty services are available through HP Care Pack services or customized service agreements. SATA hard drives have a one-year warranty.
    NOTE: Server Warranty includes 3-Year Parts, 3-Year Labor, 3-Year Onsite support with next business day response. Warranty repairs may be accomplished through the use of Customer Self Repair (CSR) parts. These parts fall into two categories: 1) Mandatory CSR parts are designed for easy replacement. A travel and labor charge will result when customers decline to replace a Mandatory CSR part; 2) Optional CSR parts are also designed for easy replacement but may involve added complexity. Customers may choose to have HP replace Optional CSR parts at no charge.
    Additional information regarding worldwide limited warranty and technical support is available at:
    http://h18004.www1.hp.com/products/servers/platforms/warranty/index.html

Standard Features

NOTE: For the Standard Features shipped in the "Factory Integrated Models", please see the "Configuration Information - Factory Integrated Models" section.

Processor One of the following depending on Model	Quad-Core Intel® Xeon® Processor X5570 (2.93 GHz, 8MB cache, QPI 6.4GT/s) Quad-Core Intel® Xeon® Processor X5560 (2.80 GHz, 8MB cache, QPI 6.4GT/s) Quad-Core Intel® Xeon® Processor X5550 (2.66 GHz, 8MB cache, QPI 6.4GT/s) Quad-Core Intel® Xeon® Processor E5540 (2.53 GHz, 8MB cache, QPI 5.86GT/s) Quad-Core Intel® Xeon® Processor E5530 (2.40 GHz, 8MB cache, QPI 5.86GT/s) Quad-Core Intel® Xeon® Processor E5520 (2.26 GHz, 8MB cache, QPI 5.86GT/s) Quad-Core Intel® Xeon® Processor L5520 (2.26 GHz, 8MB cache, QPI 5.86GT/s) Quad-Core Intel® Xeon® Processor E5506 (2.13 GHz, 4MB cache, QPI 4.8GT/s) Quad-Core Intel® Xeon® Processor L5506 (2.13 GHz, 4MB cache, QPI 4.8GT/s) Quad-Core Intel® Xeon® Processor E5504 (2.00 GHz, 4MB cache, QPI 4.8GT/s) Dual-Core Intel® Xeon® Processor E5502 (1.86 GHz, 4MB cache, QPI 4.8GT/s) NOTE: HT indicates that the processor model supports Intel® Hyper-Threading Technology. NOTE: Turbo indicates the maximum potential frequency increment when using Intel® Turbo Boost Technology, with 4, 3, 2, and 1 cores active. NOTE: DDR3 speed is the maximum memory speed of the processor. Actual memory speed may depend on the quantity and type of DIMMs installed. NOTE: For the Intel 5500 Series, the letter preceding the model number indicates the performance/wattage of the processor. "X" denotes High Performance/Wattage; "E" denotes Enterprise Performance/Wattage (Mainstream); and "L" denotes Lower Wattage.
Cache Memory One of the following depending on Model	8MB (1 x 8MB) Level 3 cache NOTE: For processors X5570/X5560/X5550/E5540/E5530/E5520/L5520. 4MB (1 x 4MB) Level 3 cache NOTE: For processors E5506/E5504/E5502/L5506.
Upgradeability	Upgradeable to 2 processors (4 or 8 cores)
Chipset	Intel® 5520 Chipset NOTE: For more information regarding Intel® chipsets, please see the following URL: http://www.intel.com/products/server/chipsets/.
Memory Protection	Advanced ECC Mirroring mode Lock-step mode

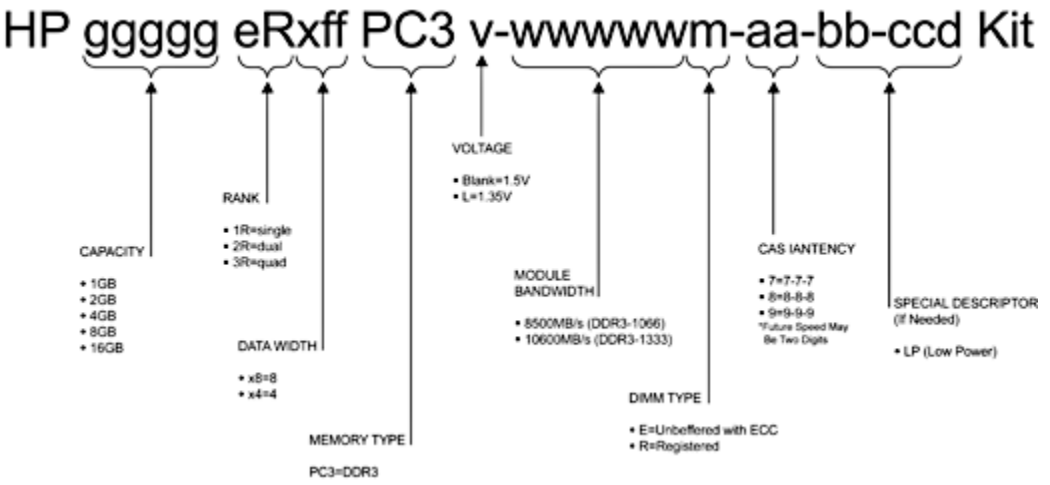
Standard Features

Memory
One of the following depending on model

Type	DDR3 Registered (RDIMM) or Unbuffered (UDIMM)
Standard (Performance Models)	12 GB (6 x 2 GB) RDIMM
Standard (Base Models)	6 GB (3 x 2 GB) RDIMM
Standard (Entry Models)	4 GB (2 x 2 GB) RDIMM
Maximum (RDIMM)	144 GB (18 x 8 GB) for Registered Memory configurations
Maximum (UDIMM)	24 GB (12 x 2 GB) for Unbuffered Memory configurations

NOTE: Depending on the memory configuration and processor model, the memory speed may run at 1333MHz, 1066MHz, or 800MHz. Please see the Online Memory Configuration Tool at: www.hp.com/go/ddr3memory-configurator.

DDR3 memory options part number decoder



Network Controller
Embedded NC326i PCI Express Dual Port Gigabit Server Adapter

Expansion Slots

Expansion Slot #	Technology	Bus Width	Connector Width	Bus Number	Form Factor	Notes
6	PCI Express Gen2	x4	x8	5	Standard Height/Length	
5	PCI Express Gen2	x4	x8	8	Standard Height/Length	
4	PCI Express Gen2	x8	x16	11	Standard Height/Length	
3	PCI Express Gen2	x8	x8	14	Standard Height/Length	
2	PCI Express Gen2	x4	x8	17	Standard Height/Length	
1	PCI Express Gen2	x4	x8	20	Standard Height/Length	

NOTE: Bus number - Default bus assignment (in decimal). Inserting cards with PCI bridges may alter the actual bus assignment number

NOTE: Indicates the number of physical electrical lanes running to the connector.

Standard Features

Storage Controller One of the following depending on model	Entry Models	HP Smart Array P410i/Zero Memory Controller (RAID 0/1/1+0)
	Base Models	HP Smart Array P410i/256MB Controller (RAID 0/1/1+0/5/5+0)
	Performance Models	HP Smart Array P410i/512 MB BBWC Controller (RAID 0/1/1+0/5/5+0/6)
	Available upgrades: 256MB, 512MB with BBWC, Battery kit upgrade (for BBWC), and Smart Array Advanced Pack (SAAP)	
Storage	Diskette Drive	None included standard (not supported)
	Optical Drives	HP Half-Height SATA DVD-ROM Optical Drive
	Hard Drives	None included standard

Maximum Internal Storage One of the following depending on model	Hot Plug LFF SATA	8TB	8 x 1TB
	Hot Plug LFF SAS	8TB	8 x 1TB
	Hot Plug SFF SATA	4.0TB	16 x 250GB
	Hot Plug SFF SAS	4.8TB	16 x 300GB

Interfaces	Serial	1
	Pointing Device (Mouse)	1
	Graphics	1
	Keyboard	1
	Network RJ-45	3 (1 dedicated for ProLiant Onboard Administrator)
	USB 2.0 Ports	6 (2 front, 2 rear, 2 internal) NOTE: Please see the following URL for additional information regarding USB support: http://h18004.www1.hp.com/products/servers/platforms/usb-support.html.

Graphics

Integrated ATI RN50, 64MB video standard

- 16 bit color: maximum resolution of 1600 x 1200
- 32 bit color: maximum resolution of 1280 x 1024

NOTE: Maximum resolution available via ProLiant Onboard Administrator remote console is 1280 x 1024.

Form Factor

Tower or Rack (5U)

NOTE: Rack models (with a Tower to Rack conversion kit) support:

- Square or round hole racks 24"- 36" deep, including HP Rack System /E and HP Systems
- Telco racks with 3rd part option kit from Rack Solutions
  http://www.racksolutions.com/hp

Core Infrastructure Management	HP Insight Foundation	Managing the growing number of servers can be complex and expensive for your organization. IT managers need to address changing business needs

with tools that meet the challenges of managing today's complex Datacenters.

HP provides management solutions that are designed to simplify a server's installation, configuration and maintenance throughout the entire server lifecyle. This provides the customer with higher levels of operational efficiency and highly reliable systems: www.hp.com/go/foundation.

The foundation pack includes:

- HP SmartStart
- HP Management
- HP ProLiant Firmware Maintenance

SmartStart version supported (minimum): SmartStart 8.20.
http://www.hp.com/servers/smartstart

NOTE: In an effort to support reducing our environmental impact, the HP ProLiant Essentials Foundation Pack media will be available as a selectable option for this server at time of order of a CTO SKU. This will allow customers to order the number of media kits that best meet their needs and eliminate receiving unnecessary duplicate media.

ProLiant Onboard Administrator	HP ProLiant Onboard Administrator (powered by the HP Integrated Lights-Out 2 management processor) simplifies server setup, health monitoring, power and thermal control, and lights-out remote administration of ProLiant ML, DL, and BL servers. HP ProLiant Onboard Administrator functions without additional software, and can be accessed from any location via a web browser. It works hand-in-hand with HP Systems Insight Manager, Insight Control suites, and the Insight Dynamics-VSE suite helping customers unlock the value of the ProLiant platform and deliver the highest possible quality of IT service to the business. See www.hp.com/go/onboardadministrator
HP Insight Control (ICE) suites	HP Insight Control (ICE) suites, as product options, deliver essential infrastructure management that can help save time and money by making it easy to deploy, monitor, remote control, and optimize your IT infrastructure through a single, simple management console. ICE suites install and license software modules that are integrated into HP System Insight Manager. Two Insight Control suites are available, to serve environments requiring either Linux-based or Windows-based management consoles: HP Insight Control suite for Linux (ICE-LX), and HP Insight Control suite (ICE). See www.hp.com/go/insightcontrol HP Insight Control suites include one year of 24 x 7 HP Software Technical Support and Update Service ensuring rapid access to HP support staff and proactive delivery of software updates. For more information about this service, please visit: http://www.hp.com/services/insight.
HP Insight Dynamics – VSE suite	The HP Insight Dynamics - VSE suite for ProLiant, a product option, is an integrated command center that enables you to continuously analyze and optimize your adaptive infrastructure. This advanced infrastructure management software that allows you to analyze and optimize your adaptive infrastructure to manage physical and virtual resources in the same way. HP Insight Dynamics - VSE gives you a powerful toolkit to accelerate complex technology projects and simplify daily operations. It enables you to plan capacity and power continuously, balance across physical and virtual resources, ensure cost-effective high availability, and provision infrastructure

consistently.

HP Insight Orchestration, an optional extension to Insight Dynamics - VSE, enables IT organizations to provision infrastructure consistently and automatically from pools of shared resources using a self-service portal. Resources provisioned can range from a single virtual machine to complex multi-tier environments and their associated physical and virtual resource requirements.

HP Insight Recovery, also an optional extension for Insight Dynamics - VSE, enables cost-effective disaster recovery for physical and virtual environments. Application environments can be reactivated in minutes with the touch of a button to a remote location.

NOTE: For more information, visit:
http://www.hp.com/go/insightdynamics,
http://www.hp.com/go/insightorchestration,
http://www.hp.com/go/insightrecovery

Industry Standard Compliance	ACPI V2.0 Compliant PCI-Express Gen2 PXE Support WOL Support PCI-X 1.0a Compliant Novell Certified Microsoft® Logo certifications USB 2.0 Support SMBIOS 2.6.1
Manageability	HP Systems Insight Manager SmartStart Redundant ROM System Firmware Update ROMPaq ProLiant RBSU (ROM-Based Setup Utility) Automatic Server Recovery-2 (ASR-2) Dynamic Sector Repairing (with Smart Array Controller) Drive Parameter Tracking (with Smart Array Controller) Pre-Failure Warranty (covers processors, memory, and SAS hard drives)
Security	Power-on password Setup password Serial interface control Disk configuration lock Power switch security

Standard Features

Security - Trusted Platform Module	Trusted Platform Module option kit The TPM (Trusted Platform Module) is a microcontroller chip that can securely store artifacts used to authenticate the server platform. These artifacts can include passwords, certificates and encryption keys. Windows® BitLocker™ Drive Encryption (BitLocker) is a data protection feature available in Windows Server® 2008. BitLocker leverages the enhanced security capabilities of a Trusted Platform Module (TPM) version 1.2. The TPM works with BitLocker to help protect user data and to ensure that a server running Windows Server 2008 has not been tampered with while the system was offline. For more information about TPM, including a white paper, go to www.hp.com/go/TPM NOTE: ProLiant OS pre-installed units will come with the partition required for TPM deployment. NOTE: The TPM key is unique to every TPM deployed server and must be retained. Misplacing or losing the key could result in data loss.
Server Power Cords	ProLiant ML servers in a rack-mount configuration no longer ship standard with NEMA power cords that allow connection to 110V US wall outlets in a home or office. These servers are primarily connected to PDU's in data center racks so they now ship standard with only a PDU power cord (416151-B21). If a user wishes to power a ProLiant ML rack-mount server using a 110V receptacle (NEMA-15), the NEMA power cord must be ordered separately. The 12' cord (AF556A) or 6' cord (187335-001) can be purchased online at HP.COM. In a tower configuration, the servers ship standard with a 6' country specific NEMA power cord. If customers require a local power cord, they can check the power cord matrix for the appropriate country specific sku. Please see the following power cord matrix: http://www.hp.com/go/powercordmatrix.
UPS and PDU Power Cord Matrix	Please see the UPS and PDU cable matrix's on the HP Power Protection and Management page. Under Power Cords, click on the "HP Power Cord Matrix" link. That link will list cable descriptions, requirements, and specifications for UPS and PDU units. Please see the following link: www.hp.com/products/powercords.
Power Supply	HP has a new design for ProLiant power- the new Common Slot Power Supply bay. This design provides the customer with commonality in power supplies across multiple platforms to save on the cost of spares and allows HP to offer multiple power solutions to fit the customers' needs. Many HP ProLiant Servers come with Common Slot, High Efficiency and Right-Size Power Supplies. The new HP Common Slot power supplies are designed for the highest power efficiency without degrading performance of the ProLiant server. Power Supplies have efficiency ratings up to 92%. There are three Right Size power options available depending on the configuration of your server. To make sure you select the correct power supply to meet your configuration, please use the HP Power Advisor at www.hp.com/go/proliant-energy-efficient" or www.hp.com/go/hppoweradvisor. All HP Common Slot power sources are UL, CE Mark Compliant, Hot Plug and Redundant.

Standard Features

Common Power Slots

It is highly recommended that you use the HP Power Advisor in defining the "Right-Size" power supply for your needs. HP offers three Power Supply Options:

- 460Watts, Common Slot,92% Efficiency
- 750Watts, Common Slot, 92% Efficiency
- 1200Watts, Common Slot, 90% Efficiency

The HP ProLiant Common Slot Power supplies meet multiple Energy Efficiency Initiatives: Climate Savers Computing Initiative GOLD and ECOS Consulting 80PLUS GOLD for the 460w and 750w Power Supplies and Climate Savers Computing Initiative Silver, ECOS Consulting 80PLUS Silver for 1200w Power Supply. HP has also been working with the EPA on developing an ENERGY STAR? Computer Server specification and plans on offering models that meet the requirements when they are published. Please visit the ENERGY STAR website at www.energystar.gov for updates on the specification development process and approved platforms.

The HP Power Advisor is located at www.hp.com/go/proliant-energy-efficient or www.hp.com/go/hppoweradvisor

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System Fans

2 fans ship standard, 1 included in Processor kit and Optional Redundant Fan Kit (1)
NOTE: Does not include power supply or processor heat sink fans. Processor heat sink fans packed in processor kit.

Required Cabling

For required cabling information, refer to the HP ProLiant ML350 G6 cabling matrix at: http://www.hp.com/servers/proliantML350.
NOTE: Please see the "Storage" section of this QuickSpecs for important information on controllers and cables required to support SAS or SATA hard drives as well as storage management software available for SATA hard drives.

Operating Systems and Virtualization Software Support for ProLiant Servers

Microsoft Windows Server
Microsoft Windows Server Hyper-V
Red Hat Enterprise Linux (RHEL)
SUSE Linux Enterprise Server (SLES)
NetWare
VMware
HP Citrix Essentials for XenServer

NOTE: For more information on HP's Certified and Supported ProLiant Servers for OS and Virtualization Software and latest listing of software drivers available for your server, please visit our Support Matrix at: http://www.hp.com/go/ossupport and our driver download page www.hp.com/support/ML350G6.

Standard Features

Rack Airflow Requirements	Rack 10000 G2 series Cabinets The increasing power of new high-performance processor technology requires increased cooling efficiency for rack-mounted servers. The 10000 G2 Series Racks provide enhanced airflow for maximum cooling, allowing these racks to be fully loaded with servers using the latest processors. CAUTION: If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment: Front and rear doors: If your 42U server rack includes closing front and rear doors, you must allow 830 square inches (5,350 sq cm) of hole evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation). Side: The clearance between the installed rack component and the side panels of the rack must be a minimum of 2.75 inches (7 cm). CAUTION: Always use blanking panels to fill all remaining empty front panel U-spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.
Rack Kit	Quick deploy rail system provides tool-free support for racks with square or round mounting holes (including Compaq/HP 7000, 9000, 10000 G2 and HP series), with an adjustment range of 24" - 36". The ambidextrous cable management arm can be mounted on either the left or right side for improved cable management.
Telco Rack Support	Support for all 2-post Telco racks requires the use of the standard rack kit and an additional option kit from Rack Solutions at: http://www.racksolutions.com/hp/
Factory Express Portfolio for Servers and Storage	HP Factory Express offers configuration, customization, integration and deployment services for HP servers and storage products. Customers can choose how their factory solutions are built, tested, integrated, shipped and deployed. Factory Express offers service packages for simple configuration, racking, installation, complex configuration and design services as well as individual factory services, such as image loading, asset tagging, and custom packaging. HP products supported through Factory Express include a wide array of servers and storage: HP Integrity, HP ProLiant, HP ProLiant Server Blades, HP BladeSystem, HP 9000 servers as well as the MSAxxxx, VA7xxx, EVA, XP, rackable tape libraries and configurable network switches. For more information on Factory Express services for your specific server model please contact your sales representative or go to: http://www.hp.com/go/factory-express.
HP Enterprise Configurator	The HP eConfigure Enterprise Configurator now provides factory default racking for our HP hardware portfolio. This approach is aligned with our strategic direction to meet the needs and expectations of our valued customers. If you require "custom" rack configuration, please contact HP's Customer Business Center or an Authorized Partner for assistance. For additional information please visit: http://www.hp.com/products/configurator

Standard Features

Service and Support

HP Care Pack services provide total care and support expertise with committed response designed to meet your IT and business needs.

HP Care Pack services include coverage for the HP branded hardware options qualified for the server and purchased at the same time or afterward that are internal to the enclosure. This also includes the 22" and smaller external monitors and tower UPS options up to 3kVA. These items will be covered at the same service level and for the same coverage period as the server. Coverage of UPS Battery is not included, and standard warranty terms & conditions apply. For servers or storage systems installed within a rack, service also covers all HP qualified rack options installed within the same rack.

To fully capitalize on your HP ProLiant servers' capabilities requires a service partner who thoroughly understands your server technology and systems environment. HP Services, an industry leader in provision of multi vender support solutions, provides a range of support services designed to meet the varying needs of your business. Whether an SMB, or large global corporation, HP has a ProLiant server support offer to help you speedily deploy and maximize system uptime.

Recommended Service - simplify ProLiant solution implementation, maintenance, and management.

- Support - 3-Year 4-Hour response 24x7 Same Business Day Coverage only
- Service - Installation and Start up only

Enhanced Service - optimize service level to increase IT performance and availability.

- Support - 3-Year Support Plus 24 only

Refer to the information on "Installation & Start-Up" for service on ProLiant server and Microsoft or Linux O/S per the Customer Description and/or Data Sheet; to be delivered on a scheduled basis 8am-5pm, M-F, excluding HP holidays.

NOTE: For a complete listing of service offerings and information visit:
http://www.hp.com/services/proliantservices
http://www.hp.com/go/proliant/carepack

Models

Entry Tower Models: Quad-Core

HP ProLiant ML350 G6 E5504 2.0GHz Quad Core LFF Entry Tower Server 487932-xx1	Processor	(1) Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800
	Cache Memory	4MB (1 x 4MB) Level 3 cache
	Memory	4GB (2 x 2GB) PC3-10600R (DDR3-1333) Registered DIMMs
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
	Storage Controller	HP Smart Array P410i/Zero Memory Controller
	Hard Drive	None ship standard
	Internal Storage	6.0 TB LFF (3.5-inch) SAS 6.0 TB LFF (3.5-inch) SATA
	Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
	PCI-Express Slots	Six expansion slots (six PCI-Express Gen2)
	Power Supply	(1) 460 Watt Hot-Plug (Redundancy enabled) power supply
	Fans	2 fans ship standard
	Form Factor	Tower (5U)

Base Tower Models: Quad-Core

HP ProLiant ML350 G6 E5520 2.26GHz Quad Core SFF Base Tower Server 487930-xx1	Processor	(1) Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)
	Cache Memory	8MB (1 x 8MB) L3 cache
	Memory	6GB (3 x 2GB) PC3-10600R (DDR3-1333) Registered DIMMs
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
HP ProLiant ML350 G6 E5520 2.26GHz Quad Core SFF Base Rack Server 487931-xx1	Storage Controller	HP Smart Array P410i/256MB Controller
	Hard Drive	None ship standard
	Internal Storage	2.4 TB SFF(2.5-inch) SAS 2.0 TB SFF(2.5-inch) SATA
	Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
	PCI-Express Slots	Six expansion slots (six PCI-Express Gen2)
	Power Supply	(1) 750 Watt Hot-Plug (Redundancy enabled) power supply
	Fans	2 fans ship standard
	Form Factor	Tower or Rack (5U)

Models

Performance Models

HP ProLiant ML350 G6 E5530 2.40GHz Quad Core SFF High Performance Tower Server 487928-xx1	Processor(s)	(2) Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2)
	Cache Memory	8MB (1 x 8MB) L3 cache
	Memory	12GB (6 x 2GB) PC3-10600R (DDR3-1333) Registered DIMMs
	Network Controller	Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
HP ProLiant ML350 G6 E5530 2.40GHz Quad Core SFF Performance ICE Rack Server 576778-xx1	Storage Controller	HP Smart Array P410i/512MB with BBWC
	Hard Drive	None ship standard
	Internal Storage	2.4 TB SFF(2.5-inch) SAS 2.0 TB SFF(2.5-inch) SATA
	Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive
	PCI-Express Slots	Six expansion slots (six PCI-Express Gen2)
	Power Supply	(2) 750 Watt Hot-Plug Redundant power supplies
	Fans	4 fans ship standard
	Form Factor	Tower (5U)

Country Code Key	Tower Code Key	Rack Code Key
XX=00	U.S.	U.S.
XX=01	Australia	N/A
XX=03	UK	N/A
XX=04	Germany	N/A
XX=05	France	N/A
XX=20	Brazil	N/A
XX=29	Japan	Japan
XX=37	A/P	A/P
XX=42	Europe	Europe
XX=AA	PRC	PRC

Configuration Information - Factory Integrated Models

NOTE: This section lists some of the steps required to configure a Factory Integrated Model. To ensure only valid configurations are ordered, HP recommends the use of an HP approved configurator. Contact your local sales representative for information on CTO product offerings and requirements.
NOTE: HP does not allow factory integration of options into standard models listed above. Configure-to-order servers must start with a CTO Chassis.
NOTE: FIO indicates that this option only available as a Factory Installable Option.

Step 1: Base Configuration (choose one of the following configurable models)

Models

ML350G6 Tower Models

HP ML350T06 SAS SFF CTO Chassis 483447-B21

Includes:

Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
Integrated Smart Array P410i Controller
Eight Hot-Plug (SFF) SAS/SATA Drive Bays
Six Expansion slots: One Express x16 Gen2 (x8 speed); One PCI-Express x8 Gen2(x8 speed); Four PCI-Express x8 Gen2 (x4 speed)
Six USB ports
Tower Form Factor
Keyboard
2-button Mouse

HP ML350T06 SAS LFF CTO Chassis 483448-B21

Includes:

Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
Integrated Smart Array P410i Controller
Six Hot-Plug (LFF) SAS/SATA Drive Bays
Six Expansion slots: One Express x16 Gen2 (x8 speed); One PCI-Express x8 Gen2(x8 speed); Four PCI-Express x8 Gen2 (x4 speed)
Six USB ports
Tower Form Factor
Keyboard
2-button Mouse

ML350G6 Rack Models

HP ML350R06 SAS SFF CTO Chassis 483443-B21

Includes:

Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
Integrated Smart Array P410i Controller
Eight Hot-Plug (SFF) SAS/SATA Drive Bays
Six Expansion slots: One Express x16 Gen2 (x8 speed); One PCI-Express x8 Gen2(x8 speed); Four PCI-Express x8 Gen2 (x4 speed)
Six USB ports
Rack (5U) Form Factor

HP ML350R06 SAS LFF CTO Chassis 483444-B21

Includes:

Embedded NC326i PCI Express Dual Port Gigabit Server Adapter
Integrated Smart Array P410i Controller
Six Hot-Plug (LFF) SAS/SATA Drive Bays
Six Expansion slots: One Express x16 Gen2 (x8 speed); One PCI-Express x8 Gen2(x8 speed); Four PCI-Express x8 Gen2 (x4 speed)

Six USB ports
Rack (5U) Form Factor

Step 2: Choose Required Options (only one of the following from each list unless othe noted)

Processors	Quad-Core Processors	
	Intel® Xeon® Processor X5570 (2.93 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) ML350G6 FIO Kit	495904-L21
	Intel® Xeon® Processor X5560 (2.80 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) ML350G6 FIO Kit	495906-L21
	Intel® Xeon® Processor X5550 (2.66 GHz, 8MB L3 Cache, 95W, DDR3-1333, HT, Turbo 2/2/3/3) ML350G6 FIO Kit	495908-L21
	Intel® Xeon® Processor E5540 (2.53 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) ML350G6 FIO Kit	495910-L21
	Intel® Xeon® Processor E5530 (2.40 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) ML350G6 FIO Kit	495912-L21
	Intel® Xeon® Processor E5520 (2.26 GHz, 8MB L3 Cache, 80W, DDR3-1066, HT, Turbo 1/1/2/2) ML350G6 FIO Kit	495914-L21
	Intel® Xeon® Processor E5506 (2.13 GHz, 4MB L3 Cache, 80W, DDR3-800) ML350G6 FIO Kit	495916-L21
	Intel® Xeon® Processor E5504 (2.00 GHz, 4MB L3 Cache, 80W, DDR3-800) ML350G6 FIO Kit	495918-L21
	Intel® Xeon® Processor L5520 (2.26 GHz, 8MB L3 Cache, 60W, DDR3-1066, HT, Turbo 1/1/2/2) ML350G6 FIO Kit	505513-L21
	Intel® Xeon® Processor L5506 (2.13 GHz, 4MB L3 Cache, 60W, DDR3-800) ML350G6 FIO Kit	495902-L21
	Dual-Core Processors	
	Intel® Xeon® Processor E5502 (1.86 GHz, 4MB L3 Cache, 80W, DDR3-800) ML350G6 FIO Kit	495920-L21
Base Memory	Registered DIMMs (RDIMMs)	
	HP 2GB 2Rx8 PC3-10600R-9 Kit	500656-B21
	HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
	HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
	HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21
	HP 8GB 2Rx4 PC3-10600R-9 Kit	500662-B21
	HP 16GB 4Rx4 PC3-8500R-7 Kit	500666-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
	HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21

NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator.
NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see:
http://h18004.www1.hp.com/products/servers/platforms/energyefficient/

Configuration Information - Factory Integrated Models

Optical Drive	HP Half-Height SATA DVD-ROM Optical Drive	447326-B21
	HP Half-Height SATA DVD RW Optical Drive	447328-B21
Power Supplies	NOTE: Prior to making a power supply selection it is "highly recommended" that the "HP Power Advisor" is run to determine the right size power supply for your server configuration. The HP Power Advisor is located at: "www.hp.com/go/proliant-energy-efficient" or www.hp.com/go/hppoweradvisor. Many HP ProLiant Servers now offer new power options, including Common Slot Power Supplies. These power supplies come in multiple power ratings and higher efficiency levels to offer the Right Size solution to fit your configuration. This provides improved power delivery and the advantage of reclaiming lost power.	
	HP 460W CS HE Power Supply Kit	503296-B21
	HP 750W CS HE Power Supply Kit	512327-B21
	HP 1200W CS HE Power Supply Kit	500172-B21
	NOTE: Option Kits contain optional power supply, an IEC power cable and PDU IEC cables.	

Step 3: Choose Additional Factory Integratable Options

Integrated hypervisor (iHNV)	NOTE: HP VMware ESXi free download from www.software.hp.com - select Virtualization	
	HP VMware 3i Enterprise 2p Lic SW NOTE: For additional information and options kits, please see the QuickSpecs at: www.hp.com/go/vmware.	430341-B21
	NOTE: HP XenServer Select Edition free Download from: http://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=HPXS	
	HP Essentials -XenServer Platinum Nm Lic	530753-B21
	HP ProLiant Virtual Console Full License	508293-B21
	XenServer HP Ent Upg iSW Lic	464676-B21
	HP Citrix Essentials for XenServer Enterprise Edition NOTE: For additional information and options kits, please see the HP Citrix Essentials for XenServer QuickSpecs at www.hp.com/go/citrix	508294-B21
Controllers	HP P212/256 MB Smart Array Controller FIO Kit NOTE: SAS Controller supporting RAID 0/1/1+0/5.	491191-B21
	HP P411/256MB BBWC Smart Array Controller FIO Kit NOTE: SAS Controller supporting RAID 0/1/1+0/5.	491193-B21
	HP 256 MB P-series cache module FIO NOTE: Available for P410i only.	534108-B21
Performance Packs	Performance Packs are necessary to configure a HP ProLiant ML350 G6 to a High Performance Model which includes the latest performance technologies and enterprise class availability features pre-installed for convenience and value. The Performance Pack includes a 2nd processor, 512MB cache with BBWC for P410i (650 mAh P-Series Battery), redundant fan, and (1) 750W CS HE Power supply kit. NOTE: Must also select 447326-B21 (SATA DVD ROM) to achieve parity to ML350 G6 High Performance Models.	
	HP ML350G6 E5530 HPM FIO Kit	530547-B21

Step 4: Choose Additional Options for Factory Integration

NOTE: For additional options, please refer to the "Core Options" and "Additional Options" section below.

Core Options

NOTE: Some options may not be available for factory integration. Please contact an HP sales representative for additional information

Unique Options	HP ML350 G6 Redundant Fan/Baffle Kit	515081-B21
	HP ML350 G6 2 Slot PCI-X Riser Kit NOTE: The HP PCI-X Expander kit converts a single PCI Express slot (slot 6) into two full height, full length 64-bit 100MHz PCI-X slots.	488413-B21
	HP ML350G6 Tower to Rack Conversion Kit NOTE: See "Redundant Options" section below for Hot Plug Redundant Power supplies.	534534-B21
Processors	Quad-Core Processors	
	Intel® Xeon® X5570 2.93GHz Quad Core 95 Watts ML350 G6 Processor Option Kit	495904-B21
	Intel® Xeon® X5560 2.80GHz Quad Core 95 Watts ML350 G6 Processor Option Kit	495906-B21
	Intel® Xeon® X5550 2.66GHz Quad Core 95 Watts ML350 G6 Processor Option Kit	495908- B21
	Intel® Xeon® E5540 2.53GHz Quad Core 80 Watts ML350 G6 Processor Option Kit	495910-B21
	Intel® Xeon® E5530 2.40GHz Quad Core 80 Watts ML350 G6 Processor Option Kit	495912-B21
	Intel® Xeon® E5520 2.26GHz Quad Core 80 Watts ML350 G6 Processor Option Kit	495914-B21
	Intel® Xeon® E5506 2.13GHz Quad Core 80 Watts ML350 G6 Processor Option Kit	495916-B21
	Intel® Xeon® E5504 2.0GHz Quad Core 80 Watts ML350 G6 Processor Option Kit	495918-B21
	Intel® Xeon® L5520 2.26GHz Quad Core 60 Watts ML350 G6 Processor Option Kit	505513-B21
	Intel® Xeon® L5506 2.13GHz Quad Core 60 Watts ML350 G6 Processor Option Kit	495902-B21
	Dual-Core Processors	
	Intel® Xeon® E5502 1.86GHz Dual Core 80 Watts ML350 G6 Processor Option Kit	495920-B21

Core Options

Memory	Registered RDIMMs	
	HP 2GB 1x2GB PC3-10600 Registered CAS 9 Dual Rank x4 DRAM Memory Kit	500656-B21
	HP 4GB 1x4GB PC3-10600 Registered CAS 9 Dual Rank x4 DRAM Memory Kit	500658-B21
	HP 4GB 1x4GB PC3-8500 Registered CAS 7 Quad Rank x8 Low Power DRAM Memory Kit	500660-B21
	HP 8GB 1x8GB PC3-8500 Registered CAS 7 Dual Rank x4 DRAM Memory Kit	516423-B21
	HP 8GB 2x4GB PC3-10600 Registered CAS 9 Dual Rank DRAM Memory Kit	500662-B21
	HP 16GB 1x16GB PC3-8500 Registered CAS 7 Quad Rank x4 DRAM Memory Kit	500666-B21
	Unregistered with ECC UDIMMs	
	HP 1GB 1x1GB PC3-10600 ECC Unbuffered CAS 9 Single Rank x8 DRAM Memory Kit	500668-B21
	HP 2GB 1x2GB PC3-10600 ECC Unbuffered CAS 9 Dual Rank x8 DRAM Memory Kit	500670-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: www.hp.com/go/proliant-energy-efficient.	
Optical Drives	HP Half-Height SATA DVD-ROM Optical Drive	447326-B21
	HP Half-Height SATA DVD-RW Optical Drive	447328-B21
	NOTE: Please note that some of the earlier BTO models may not support adding SATA Optical Drives. To ensure compatibility of the SATA Optical Drives, please add additional optical drives only on models with Quad-Core 5400 Series.	
Hard Drives	SAS Hot Plug SFF Enterprise (ENT) Drives	
	HP 300GB 6G SAS 10K rpm 2.5-inch Dual Port Enterprise Hard Disk Drive	507127-B21
	HP 300GB 10K rpm Hot Plug SAS 2.5 Dual Port Hard Drive	492620-B21
	HP 146GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise Hard Drive	512547-B21
	HP 146GB 6G SAS 10K rpm 2.5-inch Dual Port Enterprise Hard Disk Drive	507125-B21
	HP 146GB 10K rpm Hot Plug SAS 2.5 Dual Port Hard Drive	418367-B21
	HP 146GB 3G SAS 15K rpm 2.5-inch Dual Port Enterprise Hard Disk Drive	504062-B21
	HP 72GB 6G SAS 15K rpm SFF (2.5-inch) Dual Port Enterprise Hard Drive	512545-B21
	HP 72GB 15K rpm Hot Plug SAS 2.5 Dual Port Hard Drive	418371-B21
	HP 72GB 10K rpm Hot Plug SAS 2.5 Dual Port Hard Drive	384842-B21
	HP 36GB 15K rpm Hot Plug SAS 2.5 Dual Port Hard Drive	418369-B21
	NOTE: Please note that SFF 2.5" (small form factor) drives can only be installed on tower or rack models with SFF chassis (models).	
	SAS Hot Plug 3.5" Enterprise (ENT) Drives	
	HP 450GB 15K rpm Hot Plug SAS 3.5 Dual Port Enterprise Hard Drive	454232-B21
	HP 400GB 10K rpm Hot Plug SAS 3.5 Dual Port Enterprise Hard Drive	459508-B21
	HP 300GB 3G SAS 15K rpm LFF (3.5-inch) Dual Port Enterprise Hard Drive	416127-B21
	HP 146GB 15K rpm Hot Plug SAS 3.5 Dual Port Hard Drive	384854-B21
	HP 72GB 15K rpm Hot Plug SAS 3.5 Dual Port Hard Drive	384852-B21

Core Options

SAS Hot Plug 3.5" Midline (MDL) Drives	
HP 1TB 7.2K rpm Hot Plug SAS Dual Port Midline 1yr Warranty Hard Drive	461137-B21
HP 750GB 7.2K rpm Hot Plug SAS Dual Port Midline 1yr Warranty Hard Drive	461135-B21
NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/12244_div/12244_div.html (Worldwide)	
SAS Hot Plug SFF Midline (MDL) Drives	
HP 500GB 6G SAS 7.2K rpm SFF(2.5-inch) Dual Port Midline 1yr Warranty Hard Drive	507610-B21
SATA Hot Plug SFF Midline (MDL) Drives	
HP 500GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	507750-B21
HP 160GB 3G SATA 7.2K rpm SFF (2.5-inch) Midline 1yr Warranty Hard Drive	530888-B21
SATA Hot Plug SFF Entry (ETY) Drives	
HP 250GB 5.4K rpm Hot Plug SATA Entry 1yr Warranty Hard Drive	460355-B21
HP 120GB 5.4K rpm Hot Plug SATA 2.5 Entry 1yr Warranty Hard Drive	458924-B21
SATA Hot Plug 3.5" Midline (MDL) Drives	
HP 1TB 7.2K rpm Hot Plug SATA Midline 1yr Warranty Hard Drive	454146-B21
HP 750GB 7.2K rpm Hot Plug SATA Midline 1yr Warranty Hard Drive	458930-B21
HP 500GB 7.2K rpm Hot Plug SATA Midline 1yr Warranty Hard Drive	458928-B21
HP 250GB 7.2K rpm Hot Plug SATA Midline 1yr Warranty Hard Drive	458926-B21
SATA Hot Plug 3.5" Entry (ETY) Drives	
HP 160GB 7.2K rpm Hot Plug SATA Entry 1yr Warranty Hard Drive	458945-B21
NOTE: SATA hard drives have a 1-year warranty. Please see the QuickSpecs for Technical Specifications and additional information: http://h18000.www1.hp.com/products/quickspecs/13021_div/13021_div.html (Worldwide)	
NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.	

Core Options

Communications	Gigabit Ethernet adapters	
	HP NC112T PCI Express Gigabit Server Adapter	503746-B21
	HP NC360T PCI-E Dual Port Gigabit Server Adapter	412648-B21
	HP NC364T PCI-E Quad Port Gigabit Server Adapter	435508-B21
	NOTE: Does not support Windows 2000.	
	NOTE: There is a maximum of five NC364T PCI Express Quad Port Gigabit Server Adapter NICs allowed in this server.	
	HP NC373F PCI-E Multifunction 1000SX Gigabit Svr Adapter	394793-B21
	HP NC373T PCI-E Multifunction Gigabit Server Adapter	394791-B21
	HP NC382T PCI Express Dual Port Multifunction Gigabit Server Adapter	458492-B21
	10 Gigabit Ethernet adapters	
	HP NC522SFP Dual Port 10GbE Server Adapter	468332-B21
	NOTE: A minimum of two gigabytes (2 GB) of server memory is required per each NC522SFP adapter.	
	NOTE: Direct Attach Cable (DAC) for copper environments or fiber transceivers and cables for fiber-optic environments must be purchased separately.	
	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: www.hp.com/go/ProLiantNICs	

Redundant Options	CAUTION: Optional Power Supplies used for Redundancy "must" match the original supplied power supply. Upgrades for more power headroom, when replacing the original power supplies must match if purchased for redundancy. Option Kits contain optional power supply, an IEC power cable and PDU IEC cables. In ProLiant Servers that have more than one power slot (bay), only same size power supplies are recommended. If non-matched power supplies are inserted you will get errors and operation will fail.	
	HP 460W HE 12V Hot Plug AC Power Supply Kit	503296-B21
	HP 750W Common Slot High Efficiency Power Supply Kit	512327-B21
	HP 1200W 12V Hot Plug AC Power Supply	500172-B21
	NOTE: Option Kits contain optional power supply, an IEC power cable and PDU IEC cables.	
	NOTE: Prior to making a power supply selection it is "highly recommended" that the "HP Power Advisor" is run to determine the right size power supply for your server configuration.	
	The HP Power Advisor is located at " www.hp.com/go/proliant-energy-efficient "	

Additional Options

HP Insight Control Environment Suite	HP Insight Control suite for Linux	
	HP Insight Control suite for Linux 1 Server 1yr Support/Updates Software License	464423-B22
	NOTE: This part number can be used to purchase one (1) license with a single activation key. Customer will receive a printed license entitlement certificate via physical shipment. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. NOTE: One certificate is shipped for each license.	
	HP Insight Control suite for Linux Media Kit	464422-B22
	NOTE: This optional Media pack DVD contains the ISO image for HP Insight Control suite for Linux, HP System Insight Manager, HP Insight Power Manager, HP Virtual Machine Manager, and an integrated installer. Servers must be acquired separately. NOTE: This Media pack is optional because the latest ISO image and latest updates may be downloaded at no cost from: http://www.hp.com/go/ice-linux (click on Download button).	
	NOTE: For additional License kits and Electronic licensing options, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/13019_div/13019_div.html	
	HP Insight Control suite	
	HP Insight Control Environment No Media 1 Server including 1 year 24x7 Supp Lic	452148-B22
	NOTE: This part number can be purchased as a single license or as multiple licenses with a single activation key. Customer will receive a license entitlement certificate via e-mail. The license entitlement certificate must be redeemed online or via fax in order to obtain the license activation key(s). Includes one year of 24 x 7 HP Software Technical Support and Update Service. Only available directly from HP and select resellers in the Americas region.	
	HP Insight Control Environment Software Media Kit	436222-B21
	NOTE: Insight Software DVD media without licenses. Contains Insight Manager and Essentials software products and components licensed by Insight Control Environment suite. Uses an integrated installer to perform quick and accurate software installation and updates.	
	NOTE: For additional License Kits, please see the QuickSpecs at: http://h18000.www1.hp.com/products/quickspecs/12631_div/12631_div.html	
Drive Cage Options	HP ML350/370 G6 8 Small Form Factor (SFF) 2nd Drive Cage Kit	507803-B21
	NOTE: The Second drive cage installation replaces 2 internal optical bays. It is required to purchase a SAS RAID controller or SAS Expander Card to support over 8 HDD	
	HP ML350/ML/DL370G6 2 Large Form Factor Drive Kit	487936-B21
	NOTE: The Second drive cage installation replaces 2 internal optical bays.	

Additional Options

Secure Digital (SD) Memory Cards	HP Photosmart 2 GB SD Card	L1877A
	HP Photosmart 4GB Hi-Speed SDHC Card	L1878A#707
Security	HP Trusted Platform Module Option	488069-B21
Storage Controllers	SAS Controllers	
	HP Smart Array P800 Controller	
	HP Smart Array P800 Controller	381513-B21
	NOTE: Supports internal or external drive attach.	
	NOTE: Please see the following QuickSpecs additional information: http://h18000.www1.hp.com/products/quickspecs/12616_div/12616_div.html	
	HP Smart Array P212 Controller	
	HP Smart Array P212/Zero Memory Controller	462828-B21
	HP Smart Array P212/256 Controller	462834-B21
	HP 256MB P-series Cache Upgrade	462968-B21
	HP 650 mAh P-series Battery	462969-B21
	NOTE: Please see the following QuickSpecs additional information: http://h18000.www1.hp.com/products/quickspecs/13203_div/13203_div.html	
	HP Smart Array P410 Controller	
	HP Smart Array P410/256 Controller	462862-B21
	HP Smart Array P410/512 MB BBWC Controller	462864-B21
	HP 512MB P-series Battery Backed Write Cache Upgrade	462967-B21
	NOTE: When used with the embedded HP Smart Array P410i controller, this battery module also requires a 24 inch SFP Battery Cable (496029-B21). NOTE: HP 256MB P-series Cache Upgrade (462968-B21) and HP 650 mAh P-series battery (462969-B21) are valid options for the P410 controller.	
	NOTE: Please see the following QuickSpecs additional information: http://h18000.www1.hp.com/products/quickspecs/13201_div/13201_div.html (Smart Array P410 Controller)	
	HP Smart Array P411 Controller	
	HP Smart Array P411/256 Controller	462830-B21
	HP Smart Array P411/512 BBWC Controller	462832-B21
	NOTE: While ordering the 256 BBWC (462968-B21), 512 BBWC (462967-B21) or the BBWC kit (462969-B21) battery modules on the Smart Array controllers the customer also needs to order a 24 inch SFP Battery Cable (496029-B21)	
	NOTE: Please see the following QuickSpecs additional information: http://h18000.www1.hp.com/products/quickspecs/13202_div/13202_div.html	
	SAS Controller Options	
	HP 24 Bay 3Gb SAS Expander Card	468406-B21
	NOTE: For use with additional 8 SFF drive cage (xxxxxx-B21). Enter the drive cage number for your system. NOTE: Customer needs to order 8" Mini SAS to Min SAS cables (496012-B21) when connecting the Smart Array P410 Controller to a SAS Expander Card	

Additional Options

	NOTE: Please see the QuickSpecs for Technical Specifications and additional information: http://h18004.www1.hp.com/products/quickspecs/13232_div/13232_div.html	
	SAS HBA	
	HP SC08Ge Host Bus Adapter	488765-B21
	NOTE: Please see the HBA QuickSpecs for additional information: http://h18004.www1.hp.com/products/quickspecs/13082_div/13082_div.html	
	SCSI HBA	
	HP Single Channel Ultra320 PCI-E SC11Xe Host Bus Adapter	412911-B21
	NOTE: Supports external drive attach.	
	NOTE: Please see the following QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/12566_div/12566_div.html	
Tape Storage	NOTE: For the complete listing of Tape Drive offerings, please see: http://www.hp.com/products1/storage/compatibility/tapebackup/ISS/index.html	
	Tape Drives	
	USB Rack-Mount Tape Solutions	
	HP StorageWorks DAT 160 USB Internal Tape Drive	Q1580A
	SAS Rack-Mount Tape Solutions	
	HP StorageWorks DAT 160 SAS Internal Tape Drive	Q1587A
	HP StorageWorks Ultrium 448 SAS Internal Drive	DW085A
	HP StorageWorks LTO-4 Ultrium 1760 SAS Internal WW Tape Drive	EH919A
	NOTE: HP recommends purchasing the HP Smart Array P212 Controller (462828-B21) for a dedicated SAS HBA for tape.	
	HP StorageWorks DAT Autoloader	
	HP StorageWorks DAT 72x10 Tape Autoloader	AE313B
	HP StorageWorks 1/8 G2 Tape Autoloader	
	HP StorageWorks 1/8 G2 LTO-4 Ultrium 1760 SAS Tape Autoloader	AK377A
	HP StorageWorks 1/8 G2 Ultrium 920 SAS Autoloader	AH558A
	HP StorageWorks 1/8 Ultrium 448 G2 Tape Autoloader	AH164A
	HP StorageWorks 1/8 G2 Tape Autoloader Rack Kit	AH166A
	NOTE: Required to install the 1/8 G2 Autoloaders in a standard 19-inch rack; includes rails and rackmount instructions	
	NOTE: Please reference the Tape Autoloader QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution.	
	HP StorageWorks MSL2024 Tape Library	
	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1840 Tape Library	AJ033A
	HP StorageWorks MSL2024 1 LTO-4 Ultrium 1760 SAS Tape Library	AK378A
	HP StorageWorks MSL2024 1 Ultrium 960 Drive Library	AG115A
	HP StorageWorks MSL2024 Ultrium 920 SAS Tape Library	AH559A
	HP StorageWorks MSL2024 1 Ultrium 448 Drive Library	AG116A

Additional Options

	NOTE: Please reference the MSL Tape Library QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs.	
	HP StorageWorks MSL4048 Tape Library	
	HP StorageWorks MSL4048 1 LTO-4 Ultrium 1840 Tape Library	AJ035A
	HP StorageWorks MSL4048 2 LTO-4 Ultrium 1760 SAS Tape Library	AK380A
	HP StorageWorks MSL4048 1 Ultrium 960 Drive Library	AG322A
	HP StorageWorks MSL4048 Ultrium 920 SAS Tape Library	AH560A
	NOTE: Please reference the MSL Tape Library QuickSpecs at: http://www.hp.com/go/automation for additional information needed to create a complete solution; reference current compatibility information at: http://www.hp.com/go/ebs.	
Disk-Based Backup	RDX Removable Disk Backup	
	HP StorageWorks RDX160 Internal Removable Disk Backup System NOTE: 160GB of Disk Storage.	AJ765A
	HP StorageWorks RDX320 Internal Removable Disk Backup System NOTE: 320GB of Disk Storage.	AJ767A
	HP StorageWorks RDX500 Internal Removable Disk Backup System	AJ934A
	NOTE: Please see the HP RDX Removable Disk Backup System QuickSpecs for additional information: http://h18000.www1.hp.com/products/quickspecs/13036_div/13036_div.html	
	D2D Backup	
	HP StorageWorks D2D120 Backup System with Data Protector Express Software Kit NOTE: 2TB of Disk Storage.	EH924A
	HP StorageWorks D2D130 Backup System with LTO-3 Ultrium 920 SAS Tape Drive NOTE: 3TB of Disk Storage.	EH952A
	HP StorageWorks D2D2503i Backup System NOTE: 3TB of Disk Storage.	EH945A
	HP StorageWorks D2D4004i Backup System NOTE: 4.5TB of Disk Storage.	EH938A
	NOTE: Please see the HP D2D Backup Systems QuickSpecs for additional information: http://www.hp.com/go/d2d.	

Additional Options

StorageWorks Options

NOTE: The following is a list of all Fibre Channel Host Bus Adapters for Windows and Linux. For detailed compatibility information please see: http://h18006.www1.hp.com/storage/saninfrastructure/hba.html

StorageWorks Fibre Channel HBA

HP StorageWorks FC2142SR 4Gb PCIe Host Bus Adapter	A8002A
HP StorageWorks FC2242SR 4Gb PCIe DC Host Bus Adapter	A8003A
HP StorageWorks FC1142SR 4Gb PCIe Host Bus Adapter	AE311A
HP StorageWorks FC1242SR 4Gb PCIe DC Host Bus Adapter	AE312A
HP StorageWorks FC2143 4 Gb PCI-X 2.0 HBA	AD167A
HP StorageWorks FC2243 4 Gb PCI-X 2.0 DC HBA	AD168A
HP StorageWorks FC1143 4Gb PCI-X 2.0 HBA	AB429A
HP StorageWorks FC1243 4Gb PCI-X 2.0 Dual Channel HBA	AE369A
HP StorageWorks 81Q PCIe Fibre Channel Host Bus Adapter	AK344A
HP StorageWorks 81E 8Gb Single Port PCIe Fibre Channel Host Bus Adapter	AJ762A
HP StorageWorks 82E 8Gb Dual Port PCIe Fibre Channel Host Bus Adapter	AJ763A
HP StorageWorks 82Q 8Gb Dual Port PCIe Fibre Channel Host Bus Adapter	AJ764A

HP StorageWorks Modular Smart Array

MSA SAN Storage Arrays

HP StorageWorks Modular Smart Array 50 Enclosure	364430-B21

NOTE: Please see the Modular Smart Array 50 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12245_div/12245_div.html (Worldwide)

HP StorageWorks MSA60 Array	418408-B21

NOTE: Please see the Modular Smart Array 60 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12627_div/12627_div.html

HP StorageWorks MSA70 Array	418800-B21

NOTE: Please see the Modular Smart Array 70 QuickSpecs for additional information including configuration steps and additional options needed for a complete solution at: http://h18000.www1.hp.com/products/quickspecs/12652_div/12652_div.html (Worldwide)

HP StorageWorks 2012sa Dual Controller Modular Smart Array	AJ753A
HP StorageWorks 2012sa Single Controller Modular Smart Array	AJ752A

NOTE: Please see the Modular Smart Array 2000sa QuickSpecs for additional options and configuration information at: http://h18000.www1.hp.com/products/quickspecs/13045_div/13045_div.html (Worldwide)

Uninterruptible Power Systems

HP Tower UPS

HP T1000v Uninterruptible Power System

HP T1000 5-15P USB Serial Uninterruptible Power System	AF404A

NOTE: The T1000v is available in China and India only.

Additional Options

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/13130_div/13130_div.html
(Worldwide)

HP T1500 G3 UPS Models

HP T1500 G3 International (INTL) Uninterruptible Power System	AF451A
HP T1500 G3 North America (NA) Uninterruptible Power System	AF450A

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/13160_div/13160_div.html
(Worldwide)

HP R/T2200 5-20P USB Serial Uninterruptible Power System	AF409A
HP R/T22K IEC-320-C14 USB Serial Uninterruptible Power System	AF411A
HP R/T2200 5-20P USB Serial Uninterruptible Power System	AF410A

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/13179_div/13179_div.html
(Worldwide)

NOTE: For additional information on HP Uninterruptable Power Systems please go to:
www.hp.com/servers/rackups.

HP Rack-mountable UPS

HP R1500 G2 UPS

HP R1.5 VA 1U Uninterruptible Power System	AF419A
HP R1.5 VA 1U Uninterruptible Power System	AF418A
HP R1.5 VA 1U Uninterruptible Power System	AF421A

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/12507_div/12507_div.html
(Worldwide)

HP R3000 UPS

HP R3000 VA 2U L5-30 Uninterruptible Power System	AF422A
HP R3000 VA 2U L6-20 Uninterruptible Power System	AF424A
HP R3000 VA 2UDTC Uninterruptible Power System	AF414A
HP R3000 VA 2U L6-20 Uninterruptible Power System	AF423A
HP R3000 VA 2U L5-30 Uninterruptible Power System	AF425A

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/10671_div/10671_div.html
(Worldwide)

HP Rack-Mountable R5500 UPS

HP R5500 VA Uninterruptible Power System	AF416A
HP R5500 VA Uninterruptible Power System	AF426A

NOTE: Please see the QuickSpecs for additional information:
http://h18000.www1.hp.com/products/quickspecs/11871_div/11871_div.html
(Worldwide)

NOTE: For additional information on HP Uninterruptable Power Systems please go to:
www.hp.com/servers/rackups.

Additional Options

Power Distribution Units	Monitored PDUs	
	HP Dual Input 3 Phase 24A Monitored Power Distribution Unit	AF503A
	HP Single Input 3 Phase 24A Monitored Power Distribution Unit	AF504A
	HP Dual Input 1 Phase 40A Monitored Power Distribution Unit	AF505A
	HP Single Input 1 Phase 40A Monitored Power Distribution Unit	AF506A
	HP Dual Input 3 Phase 16A Monitored Power Distribution Unit	AF507A
	HP Single Input 3 Phase 16A Monitored Power Distribution Unit	AF508A
	HP Dual Input 1 Phase 32A Monitored Power Distribution Unit	AF509A
	HP Single Input 1 Phase 32A Monitored Power Distribution Unit	AF510A
	HP Single Input 1 Phase 24A Monitored Power Distribution Unit	AF914A
	HP Single Input 1 Phase 32A Monitored Power Distribution Unit	AF915A
	Modular PDUs	
	HP 16A High Voltage Modular Power Distribution Unit	252663-B24
	HP 24A High Voltage Modular Power Distribution Unit	252663-D72
	HP 24A HV Core Only Modular Power Distribution Unit	252663-D74
	HP 24A Low Voltage Modular Power Distribution Unit	252663-D71
	HP 32A High Voltage Modular Power Distribution Unit	252663-B31
	HP 32A HV Core Only Modular Power Distribution Unit	252663-B33
	HP 40A High Voltage Modular Power Distribution Unit	252663-D73
	HP 40A High Voltage Modular Power Distribution Unit	252663-B32
	HP 40A High Voltage Modular Power Distribution Unit	252663-B21
	HP 40A HV Core Only Modular Power Distribution Unit	252663-B34
	HP 40A HV Core Only Modular Power Distribution Unit	252663-D75
	NOTE: Up to 32 outlets. 1U/0U mounting brackets shipped with the unit (optimized for 10000 and 9000 series racks). NOTE: For additional information on HP Power Distribution Units including accessories please go to: www.hp.com/go/pdu (Worldwide)	

HP Rack and Rack Options	Rack Kits	
	HP ML350G6 Tower to Rack Conversion Kit	534534-B21
	Rack 5000 series	
	HP 5642 Rack	358254-B21
	NOTE: Please see the HP Rack 5642 QuickSpecs for additional part numbers and Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12074_div/12074_div.html (Worldwide) NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.	
	Rack 10000 G2 series	
	HP 10642 G2 200mm Extension Pallet Rack	AF038A
	HP 10642 G2 200mm Extension Shock Rack	AF034A
	HP 10647 G2 200mm Extension Pallet Rack	AF045A
	HP 10647 G2 200mm Extension Shock Rack	AF044A
	NOTE: It is mandatory to use a shock pallet when shipping racks with equipment	

installed.
NOTE: xxxxxx-B22 (shock pallet) used to ship racks with equipment installed (by custom systems, VARs and Channels).
NOTE: Please see the Rack 10000 G2 QuickSpecs for Technical Specifications such as height, width, depth, weight, and color: http://h18000.www1.hp.com/products/quickspecs/12402_div/12402_div.html (Worldwide)
NOTE: For additional information regarding Rack Cabinets, please see the following URL: http://www.hp.com/go/rackandpower.

Keyboards and Monitors

HP TFT7600 Rackmount Keyboard 17in US Monitor	AG052A
HP TFT7600 Rackmount Keyboard 17in UK Monitor	AG053A
HP TFT7600 Rackmount Keyboard 17in DE Monitor	AG054A
HP TFT7600 Rackmount Keyboard 17in FR Monitor	AG055A
HP TFT7600 Rackmount Keyboard 17in IT Monitor	AG056A
HP TFT7600 Rackmount Keyboard 17in ES Monitor	AG057A
HP TFT7600 Rackmount Keyboard 17in DK Monitor	AG058A
HP TFT7600 Rackmount Keyboard 17in NO Monitor	AG059A
HP TFT7600 Rackmount Keyboard 17in SE/FI Monitor	AG060A
HP TFT7600 Rackmount Keyboard 17in CH Monitor	AG061A
HP TFT7600 Rackmount Keyboard 17in PT Monitor	AG062A
HP TFT7600 Rackmount Keyboard 17in BE Monitor	AG063A
HP TFT7600 Rackmount Keyboard 17in JP Monitor	AG064A
HP TFT7600 Rackmount Keyboard 17in RU Monitor	AG065A
HP TFT7600 Rackmount Keyboard 17in Intl Monitor	AG066A
HP 1U US Rackmount Keyboard with USB	AG072A
HP 1U UK Rackmount Keyboard with USB	AG073A
HP 1U DE Rackmount Keyboard with USB	AG074A
HP 1U FR Rackmount Keyboard with USB	AG075A
HP 1U Rackmount Keyboard with USB	AG076A
HP 1U Rackmount Keyboard with USB	AG077A
HP 1U Rackmount Keyboard with USB	AG078A
HP 1U Rackmount Keyboard with USB	AG079A
HP 1U Rackmount Keyboard with USB	AG080A
HP 1U Rackmount Keyboard with USB	AG081A
HP 1U Rackmount Keyboard with USB	AG082A
HP 1U Rackmount Keyboard with USB	AG083A
HP 1U Rackmount Keyboard with USB	AG084A
HP 1U Rackmount Keyboard with USB	AG085A
HP 1U Rackmount Keyboard with USB	AG086A

NOTE: For additional information regarding Rack Options, please see the following URL: http://www.hp.com/go/rackandpower.

Additional Options

	Console switches (KVM)	
	HP 2x1x16 IP Console Switch with Virtual Media	AF601A
	HP 4x1x16 IP Console Switch with Virtual Media	AF602A
	HP 0x2x16 Server Console Switch with Virtual Media	AF600A
	HP 1-pack PS/2 Virtual Media Interface Adapter NOTE: Requires PS/2 and one USB port on server.	AF604A
	HP KVM CAT5 1-pack PS/2 Interface Adapter	262588-B21
	HP KVM CAT5 8-pack PS/2 Interface Adapter	262587-B21
	HP 1x4 USB/PS2 KVM Console Switch	AF611A
	HP 1x4 KVM Console 6ft PS2 Cable	AF612A
	HP 16 Port Serial Console Server	AF101A
	HP 48 Port Serial Console Server	AF102A
	HP RJ45-DB9 DCE Female 1 Pack Serial Adapter	AF103A
	HP RJ45-DB9 DCE Female 8 Pack Serial Adapter	AF110A
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	
	NOTE: Cat5e cables are required to connect Serial Adapters to Serial Console Servers. Additional Serial Adapters and Cat5e cables can be found at the following URL: http://www.hp.com/go/kvm.	
	NOTE: For additional information regarding KVM switches, Serial Console servers, rack mount monitors, keyboards and all related options please see the following URL: http://www.hp.com/go/kvm.	
USB Options	HP 1.44MB USB External Floppy Drive	DC141B
	HP USB 2-Button Optical Scroll Mouse	DC172B
	HP Standard USB Keyboard US	DT528A#ABA
Service and Support Offerings (HP Care Pack Services)	Hardware Services On-site Service	
	HP 3y 4h 13x5 ProLiant ML350 HW Support	U4512E
	HP 3y 4h 24x7 ProLiant ML350 HW Support	U4513E
	HP 3y 6h 24x7 CTR ProLiant ML350 HW Supp	U4514E
	Installation & Start-up Services	
	HP Install ProLiant ML350 Service	U4522E
	HP Startup ProLiant ML350 Service	U4523E
	Support Plus	
	HP 3y SupportPlus MS ProLiant ML350 SVC	U4524E
	Support Plus 24	
	HP 3y SupportPlus24 MS ProLiantML350 SVC	U4525E
	HP 3ySupportPlus24 SuSEProLiantML350 SVC	U6308E
	HP 3y SupportPlus24 RedHat ES ML350 SVC	U8330E

Memory

NOTE: Memory configurations listed do not apply to "Factory Integrated Models".

DDR3 memory population guidelines

For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool:
www.hp.com/go/ddr3memory-configurator

Some DIMM installation guidelines are summarized below:

- For servers with eighteen (18) memory slots:
  - There are three (3) channels per processor; six (6) channels per server
  - There are three (3) DIMM slots for each memory channel; eighteen (18) total slots
  - Memory channel 1 consists of the three (3) DIMMs that are closest to the processor
  - Memory channel 3 consists of the three (3) DIMMs that are furthest from the processor
- DIMM slots that are white should be populated first
- Do not mix Unbuffered memory (UDIMMs) with Registered memory (RDIMMs)
- Do not install DIMMs if the corresponding processor is not installed
- If only one processor is installed in a 2CPU system, only half of the DIMM slots are available
- To maximize performance, balance the total memory capacity between all installed processors
- It is not required, but it is recommended to load the channels similarly if possible
- You can only have up to eight (8) ranks installed per channel
- You can only install two quad-rank DIMMs per channel
- You can only install two UDIMMs per channel; if available, the third slot in the channel must remain empty
- Populate DIMMs from heaviest load (quad-rank) to lightest load (single-rank) within a channel
- Heaviest load (DIMM with most ranks) within a channel goes furthest from the chipset
- For memory mirroring mode, channel 3 must be unpopulated. Channels 1 and 2 are populated identically
- For lock-step mode, channel 3 must be unpopulated. DIMMs in channels 1 and 2 will be installed in pairs. The paired slots will be 1,4; 2,5; 3;6 on a 3DPC system or 1,4; 2,5; on a 2DPC system
- No mixing DIMM voltage; all DIMMs must be the same voltage

DIMM slot/capacity/populated speed table

DIMM Type ->	Registered Dimms (RDIMMs)						Unbuffered with ECC DIMMs (UDIMMs)	
DIMM Rank ->	Dual Rank (2R)				Quad Rank (4R)		Single Rank (1R)	Dual Rank (2R)
DIMM Capacity ->	2GB	4GB	8GB	8GB	4GB	16GB	1GB	2GB
DIMM Native Speed (MHz) ->	1333	1333	1066	1333	1066	1066	1333	1333
SLOTS THAT CAN BE POPULATED								
18 slot servers	18	18	18	18	12	12	12	12
MAXIMUM CAPACITY (GB)								
18 slot servers	36	72	144	144	48	192	12	24
POPULATED DIMM SPEED (MHz)								
1 DIMM Per Channel	1333	1333	1066	1333	1066	1066	1333	1333
2 DIMM Per Channel	1333*	1333*	1066	1333*	800	800	1066	1066
3 DIMM Per Channel	800	800	800	800	n/a	n/a	n/a	n/a
* - supported with ROM update via ROM Based Setup Utility (RBSU). UDIMM support is only on 12-slot servers.								

NOTES:

Memory

- Mixing DIMM speeds is allowed, but the system processor speed rules always override the DIMM capabilities
- If you do mix DIMM speeds, the memory bus will default to the minimum clock rate of all DIMMs in the system - even if the slower DIMM is on the other processor
- If you install 1x 1066MHz DIMM in channel 1 and 1x 1333MHz DIMM in channel 2, you still run at 1066MHz
- If you install 1x 1066MHz DIMM in channel 1 and 5x 1333MHz DIMMs with 1 DIMM Per Channel (DPC) in each of the other channels, you run at 1066MHz
- If you install 3DPC in one channel (if applicable) and 1DPC in all other channels, you run at 800MHz
- 95 Watt CPU's are required for 1333MHz DIMM speeds. All other CPU's are capable of up to 1066MHz
- References to the above MHz speeds are for the various speeds of DDR3 DIMMs; 1333 refers to DDR3-1333, etc.

DIMM slot and configuration diagrams

Basic memory slot & population diagram

- Population order; start with "A" first, "B" second, "C" third, etc.

18 DIMM SLOTS (9 per CPU node)					
	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G	1	G	Chnl 1
	2	D	2	D	
	3	A	3	A	
Chnl 2	4	H	4	H	Chnl 2
	5	E	5	E	
	6	B	6	B	
Chnl 3	7	I	7	I	Chnl 3
	8	F	8	F	
	9	C	9	C	

Standard memory configuration (1 CPU model)

- 6GB, consisting of three (3) 2GB dual-rank PC3-10600 RDIMMs (Base Model)

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; empty	2	D; empty	
	3	A; 2GB DIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; empty	5	E; empty	
	6	B; 2GB DIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; empty	8	F; empty	
	9	C; 2GB DIMM	9	C; empty	

Memory

Standard memory plus optional memory (1 CPU model)

- 54GB, consisting of three (3) 2GB RDIMMs plus six (6) 8GB RDIMMs (Base Model)
  - 3x 2GB dual-rank PC3-10600 RDIMMs
  - 6x 8GB dual-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; 8GB DIMM	1	G; empty	Chnl 1
	2	D; 8GB DIMM	2	D; empty	
	3	A; 2GB DIMM	3	A; empty	
Chnl 2	4	H; 8GB DIMM	4	H; empty	Chnl 2
	5	E; 8GB DIMM	5	E; empty	
	6	B; 2GB DIMM	6	B; empty	
Chnl 3	7	I; 8GB DIMM	7	I; empty	Chnl 3
	8	F; 8GB DIMM	8	F; empty	
	9	C; 2GB DIMM	9	C; empty	

Standard memory replaced with optional memory (1 CPU model)
RDIMM maximum configuration (1 CPU model)

- 96GB, consisting of six (6) 16GB quad-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 16GB DIMM	2	D; empty	
	3	A; 16GB DIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 16GB DIMM	5	E; empty	
	6	B; 16GB DIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 16GB DIMM	8	F; empty	
	9	C; 16GB DIMM	9	C; empty	

UDIMM maximum configuration (1 CPU model)

- 12GB, consisting of six (6) 2GB dual-rank PC3-10600 UDIMMs

Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 2GB DIMM	2	D; empty	
	3	A; 2GB DIMM	3	A; empty	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 2GB DIMM	5	E; empty	
	6	B; 2GB DIMM	6	B; empty	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 2GB DIMM	8	F; empty	
	9	C; 2GB DIMM	9	C; empty	

Standard memory replaced with optional memory (2 CPU model)
RDIMM maximum configuration (2 CPU model)

- 192GB, consisting of twelve (12) 16GB quad-rank PC3-8500 RDIMMs

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 16GB DIMM	2	D; 16GB DIMM	
	3	A; 16GB DIMM	3	A; 16GB DIMM	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 16GB DIMM	5	E; 16GB DIMM	
	6	B; 16GB DIMM	6	B; 16GB DIMM	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 16GB DIMM	8	F; 16GB DIMM	
	9	C; 16GB DIMM	9	C; 16GB DIMM	

UDIMM maximum configuration (2 CPU model)

- 24GB, consisting of twelve (12) 2GB dual-rank PC3-10600 UDIMMs

Memory

	CPU1		CPU2		
	slot #	population order	slot #	population order	
Chnl 1	1	G; empty	1	G; empty	Chnl 1
	2	D; 2GB DIMM	2	D; 2GB DIMM	
	3	A; 2GB DIMM	3	A; 2GB DIMM	
Chnl 2	4	H; empty	4	H; empty	Chnl 2
	5	E; 2GB DIMM	5	E; 2GB DIMM	
	6	B; 2GB DIMM	6	B; 2GB DIMM	
Chnl 3	7	I; empty	7	I; empty	Chnl 3
	8	F; 2GB DIMM	8	F; 2GB DIMM	
	9	C; 2GB DIMM	9	C; 2GB DIMM	

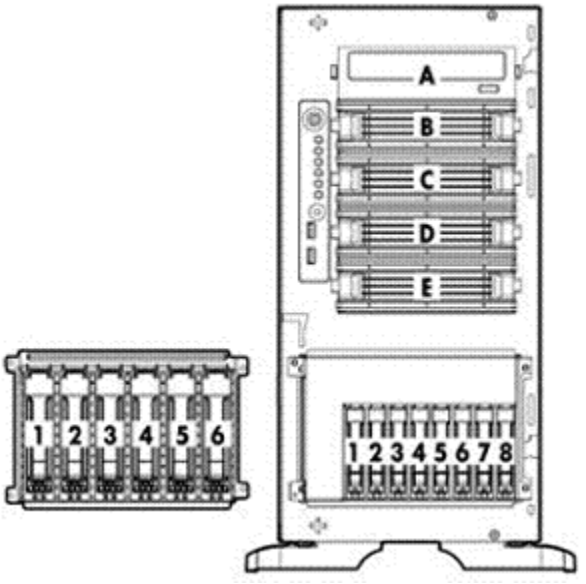
NOTE: Capacity references are rounded to the common Gigabyte values.

- 1GB = 1024MB
- 2GB = 2048MB
- 4GB = 4096MB
- 8GB = 8192MB
- 16GB = 16384MB

Following are memory options available from HP:

Memory	Registered DIMMs (RDIMMs)	
	HP 2GB 2Rx8 PC3-10600R-9 Kit	500656-B21
	HP 4GB 2Rx4 PC3-10600R-9 Kit	500658-B21
	HP 4GB 4Rx8 PC3-8500R-7 LP Kit	500660-B21
	HP 8GB 2Rx4 PC3-8500R-7 Kit	516423-B21
	HP 8GB 2Rx4 PC3-10600R-9 Kit	500662-B21
	HP 16GB 4Rx4 PC3-8500R-7 Kit	500666-B21
	Unbuffered with ECC DIMMs (UDIMMs)	
	HP 1GB 1Rx8 PC3-10600E-9 Kit	500668-B21
	HP 2GB 2Rx8 PC3-10600E-9 Kit	500670-B21
	NOTE: All DDR3 memory option kits consist of one DIMM per kit. For detailed memory configuration rules and guidelines, please use the Online DDR3 Memory Configuration Tool: www.hp.com/go/ddr3memory-configurator. NOTE: Kits described as LP include Low Power DIMMs. For more information on ProLiant Energy Efficient Features, see: http://h18004.www1.hp.com/products/servers/platforms/energyefficient/	

Storage



1 - 6	6 x 3.5" (LFF) Hot-Plug SAS/SATA hard drive bays
Or	
1 - 8	8 x 2.5" (SFF) Hot-Plug SAS/SATA hard drive bays
B,C,D,E	Available half height media bays
A-E	Removable Optical Drive
D+E	8 x 2.5" (SFF) Hot-Plug SAS/SATA hard drive bays or 2 x 3.5" (LFF) Hot-Plug SAS/SATA hard drive bays

Drive Support

	Quantity Supported	Position Supported	Controller
Removable Media			
HP Half-Height SATA DVD-ROM Optical Drive	Up to 1	A-E	Integrated SATA Controller
HP Half-Height SATA DVD RW Optical Drive	Up to 1	A-E	Integrated SATA Controller

Hard Drives

NOTE: The components of a storage subsystem (e.g. the drive, the HBA/controller, firmware, and the server backplane) should operate at the same data transfer rate or the system bandwidth will be negotiated down to an acceptable level for all components.

SAS Hot Plug SFF Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller
300GB 6G 10K DP 300GB 3G 10K DP 146GB 6G 15K DP 146GB 6G 10K DP 146GB 3G 10K DP 146GB 3G 15K DP 72GB 6G 15K DP 72GB 3G 10K DP 72GB 3G 15K DP 36GB 3G 15K DP	Up to 16 SFF	1-8 and D+E	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256MB Controller HP Smart Array P410/256MB Controller HP Smart Array P410/512MB BBWC Controller

SAS Hot Plug 3.5" Enterprise (ENT) Drives

	Quantity Supported	Position Supported	Controller

Storage

450GB 3G DP 400GB 3G 10K DP 300GB 3G 15K DP 146GB 3G 15K DP 72GB 3G 15K DP	Up to 8 LFF	1-6 and D+E	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller

SAS Hot Plug 3.5" Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
1TB 3G 7.2K DP 750GB 3G 7.2K DP	Up to 6 LFF	1-6 and D+E	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller

SAS Hot Plug SFF Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
500GB 6G 7.2K DP	Up to 6 LFF	1-6 and D+E	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller

SATA Hot Plug SFF Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
250GB 3G 5.4K SFF 120GB 1.5G 5.4K SFF	Up to 16	1-8 and D+E	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller

NOTE: HP Systems Insight Manager should not be used to view the status of SATA hard drives and SATA RAID configurations.

SATA Hot Plug 3.5" Entry (ETY) Drives

	Quantity Supported	Position Supported	Controller
160GB 3G SATA 7.2K	Up to 8	1-6 and D+E	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller

SATA Hot Plug SFF Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller

Storage

500GB 3G 7.2K SFF 160GB 3G 7.2K SFF	Up to 16	1-8 and D+E	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller

SATA Hot Plug 3.5" Midline (MDL) Drives

	Quantity Supported	Position Supported	Controller
1TB 3G SATA 7.2K 750GB 3G SATA 7.2K 500GB 3G SATA 7.2K 250GB 3G SATA 7.2K	Up to 8	1-6 and D+E	HP Smart Array P800/512 BBWC Controller HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller HP Smart Array P410/256 MB Controller HP Smart Array P410/512 MB BBWC Controller

External Storage

	Quantity Supported	Position Supported	Host Controller or Adapter
50 Modular Smart Array	Up to 4	External	HP Smart Array P800 Controller
60 Modular Smart Array	Up to 4	External	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller
	Up to 8	External	HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P800 Controller
70 Modular Smart Array	Up to 2	External	HP Smart Array P212/Zero Memory Controller HP Smart Array P212/256 MB Controller
	Up to 4	External	HP Smart Array P411/256 MB Controller HP Smart Array P411/512 MB BBWC Controller HP Smart Array P800 Controller
HP 2000sa Modular Smart Array Controller	Up to 4	External	HP SC08Ge Host Bus Adapter

Tape and Disk-Based Backup

NOTE: For a complete listing of compatible tape and disk-based backup offerings, please visit: www.hp.com/go/connect.

	Position Supported	Controller	Controller/HBA Option Kit Part Number
Internal USB Tape Drives DAT 40 USB DAT 72 USB DAT 160 USB	B,C,D,E	USB 2.0 Port	N/A

Storage

USB Tape Drives, External DAT 40 USB DAT 72 USB DAT 160 USB 1U Rack-Mount Kit	External	USB 2.0 Port	N/A
SCSI Tape Drives, Internal LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 920 LTO-4 Ultrium 1760 DAT 40 DAT 72 DAT 160	B,C,D,E	HP SC11Xe Host Bus Adapter	412911-B21
SCSI Tape Drives, Internal LTO-3 Ultrium 960 LTO-4 Ultrium 1840	B+C or D+E	HP SC11Xe Host Bus Adapter	412911-B21
SCSI Tape Drives, External LTO-1 Ultrium 232 LTO-2 Ultrium 448 LTO-3 Ultrium 960 LTO-3 Ultrium 920 LTO-4 Ultrium 1760 LTO-4 Ultrium 1840 DAT 40 DAT 72 DAT 160 1U Rack-Mount Kit 3U Rack-Mount Kit	External	HP SC11Xe Host Bus Adapter	412911-B21
SAS Tape Drives, Internal DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS LTO-4 Ultrium 1760 SAS	B,C,D,E	HP Smart Array P212/Zero Memory Controller	462828-B21
SAS Tape Drives, Internal LTO-4 Ultrium 1840 SAS	B+C or D+E	HP Smart Array P212/Zero Memory Controller	462828-B21
SAS Tape Drives, External DAT 160 SAS LTO-2 Ultrium 448 SAS LTO-3 Ultrium 920 SAS LTO-4 Ultrium 1760 SAS LTO-4 Ultrium 1840 SAS 1U Rack-Mount Kit	External	HP Smart Array P212/Zero Memory Controller	462828-B21

Storage

3U Rack-Mount Kit

SCSI Tape Automation, External DAT 72x10 Autoloader 1/8 G2 Autoloader MSL2024 MSL4048 MSL8096 MSL6000	External	HP SC11Xe Host Bus Adapter	412911-B21
SAS Tape Automation, External 1/8 G2 Autoloader MSL2024 MSL4048	External	HP Smart Array P212/Zero Memory Controller	462828-B21
HP StorageWorks Fibre Tape Automation, External MSL2024 MSL4048 MSL8096 MSL6000	External	Please consult the EBS connectivity matrix at: http://www.hp.com/go/ebs for detailed connectivity information	N/A
HP StorageWorks RDX Removable Disk Backup System, Internal RDX160 RDX320 RDX500	B,C,D,E	USB 2.0 Port	N/A
HP StorageWorks D2D Backup Systems D2D120 D2D130 D2D2500i D2D4000i	External	Embedded Network Controller	N/A

Power Specifications

HP 460W Power Supply Part Number - AC 460W PSU	503296-B21						
Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	208	200	220	230	240
Maximum Rated Output Wattage	460	460	460	460	460	460	460
Nominal Input Current (A rms)	5.5	4.5	2.6	2.5	2.4	2.3	2.2
Max Rated Input Wattage Rating (Watts)	526	520	505	505	503	503	503
Max. Rated VA (Volt-Amp)	548	542	527	527	524	524	524
Efficiency (%) at Max. Rated Output Wattage	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)	1794	1773	1725	1725	1715	1715	1715

HP 750W Power Supply Part Number - AC 750W PSU	512327-B21						
Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	208	200	220	230	240
Maximum Rated Output Wattage	750	750	750	750	750	750	750
Nominal Input Current (A rms)	8.9	7.4	4.3	4.1	3.9	3.7	3.6
Max Rated Input Wattage Rating (Watts)	857	847	824	825	820	820	820
Max. Rated VA (Volt-Amp)	894	884	859	859	854	854	854
Efficiency (%) at Max. Rated Output Wattage	87.5	88.5	91	91	91.5	91.5	91.5
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)	2925	2892	2812	2812	2797	2797	2797

Power Specifications

HP 1200W Power Supply Part Number - AC	500172-B21						
Operational Input Voltage Range (Vrms)	100 to 240						
Frequency Range (Nominal) (Hz)	50/60						
Nominal Input Voltage (Vrms)	100	120	208	200	220	230	240
Maximum Rated Output Wattage	800	900	1200	1200	1200	1200	1200
Nominal Input Current (A rms)	9.7	9.0	7.0	6.8	6.4	9.1	5.9
Max Rated Input Wattage Rating (Watts)	930	1034	1348	1348	1348	1348	1348
Max. Rated VA (Volt-Amp)	970	1079	1406	1406	1406	1406	1406
Efficiency (%) at Max. Rated Output Wattage	86	87	89	89	89	89	89
Power Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Leakage Current (mA)	0.42	0.50	0.83	0.87	0.92	0.96	1.00
Max. Inrush Current (A peak)	30	30	30	30	30	30	30
Max. Inrush Current duration (mS)	20	20	20	20	20	20	20
Maximum British Thermal Unit Rating (BTU-Hr)	3174	3530	4600	4600	4600	4600	4600

NOTES:

Prior to making a power supply selection it is "highly recommended" that the "HP Power Advisor" is run to determine the right size power supply for your server configuration.

The HP Power Advisor is located at " www.hp.com/go/proliant-energy-efficient "

NOTE: Option Kits contain optional power supply, an IEC power cable and PDU IEC cables.

Technical Specifications

System Unit	Tower Dimensions (H x W x D) (with feet/bezel)	18.5 x 8.59 x 23.46 in (47 x 21.8 x 59.6 cm)	
	Rack Dimensions (H x W x D) (with feet/bezel)	8.54 x 17.5 x 21.9 in. (21.7 x 44.5 x 55.7cm)	
	Tower Weight (approximate)	Maximum (all hard drives, power supplies, and processors installed)	70 lb (31.8 kg)
		Minimum (one hard drive, power supply, and processor installed)	54 lb (24.5 kg)
	Rack Weight (approximate)	Maximum (all hard drives, power supplies, and processors installed)	66 lb (29.9 kg)
		Minimum (one hard drive, power supply, and processor installed)	48 lb (21.8 kg)
	Input Requirements (per power supply)	Rated Line Voltage	100 to 240 VAC
		Rated Input Current	7.1 Amps (at 120VAC) to 3.5 Amps (at 240 VAC)
		Rated Input Frequency	50 to 60 Hz
		Rated Input Power	852 W
	BTU Rating	Maximum	460W - 1773 BTU / hr (at 120 VAC), 1715 (at 240 VAC) 750W - 2892 BTU / hr (at 120 VAC), 2797 (at 240 VAC) 1200W - 3530 BTU / hr (at 120 VAC), 4600 (at 240 VAC)
	Power Specifications	To review typical system power ratings use the Power Advisor which is available via the online tool located at URL: www.hp.com/go/proliant-energy-efficienct or www.hp.com/go/hppoweradvisor - Click on the system of interest. Example: ML350 G6 - Follow the instructions of the next screens.	
	Power Supply Output (per power supply)	Rated Steady-State Power	460(750) W (at 100 VAC), 460(750) W (at 200 VAC)
		Maximum Peak Power	460(750) W (at 100 VAC), 460(750) W (at 200 VAC) NOTE: See Power Supply Specifications tables for complete details on 460W PSU and optional 750W and 1200W Power Supply Options.
	System Inlet Temperature	Operating	10° to 35°C (50° to 95°F) at sea level with an altitude derating of 1.0°C per every 305 m

		(1.8°F per every 1000 ft) above sea level to a maximum of 3050 m (10,000 ft), no direct sustained sunlight. Maximum rate of change is 10°C/hr (18°F/hr). The upper limit may be limited by the type and number of options installed. System performance may be reduced if operating with a fan fault or above 30°C (86°F).
	Non-operating	-30° to 60°C (-22° to 140°F). Maximum rate of change is 20°C/hr (36°F/hr).
Relative Humidity (non-condensing)	Operating	10 to 90% relative humidity (Rh), 28°C (82.4°F) maximum wet bulb temperature, non-condensing.
	Non-operating	5 to 95% relative humidity (Rh), 38.7°C (101.7°F) maximum wet bulb temperature, non-condensing.
Altitude	Operating	3050 m (10,000 ft). This value may be limited by the type and number of options installed. Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
	Non-operating	9144 m (30,000 ft). Maximum allowable altitude change rate is 457 m/min (1500 ft/min).
Acoustic Noise	Listed are the declared A-Weighted sound power levels (LWAd) and declared average bystander position A-Weighted sound pressure levels (LpAm) when the product is operating in a 23°C ambient environment. Noise emissions were measured in accordance with ISO 7779 (ECMA 74) and declared in accordance with ISO 9296 (ECMA 109).	
	Idle	
	L WAd	4.7 B (1P Non-Redundant) 4.6 B (2P Redundant)
	L pAm	30 dB (1P Non-Redundant) 29 dB (2P Redundant)
	Operating	
	L WAd	4.8 B (1P Non-Redundant) 4.7 B (2P Redundant)
	L pAm	31 dB (1P Non-Redundant) 30 dB (2P Redundant)
	NOTE: The Listed sound levels apply to standard shipping configurations. Additional options may result in increased sound levels.	
Emissions Classification (EMC)	FCC Rating	Class B
	Normative Standards	CISPR 22; EN55022; EN55024; FCC CFR 47, Pt 15; ICES-003; CNS13438; GB9254; K22;K24; EN 61000-3-2; EN 61000-3-3; EN 60950-1; IEC 60950-1
	NOTE: Product conformance to cited product specifications is based on sample (type) testing, evaluation, or assessment. This product or family of products is eligible to bear the appropriate compliance logos and statements.	

Technical Specifications

Smart Array P410i Controller	Dimensions (not including bracket)	Low Profile PCIe Form Factor 7.5 in x 9.5 in x 2.25 in (19.05 cm x 24.13 cm x 5.72 cm)
	Disk Drive and Enclosure Interface - transfer rate	3G SAS, 6G capable (Serial Attached SCSI) 1.5G SATA, 3G capable (Serial ATA)
	SAS Connectors	2 internal (Mini-SAS) x4 wide port connectors
	Cache Memory Speed	DDR2-800MHz with 40 or 72-bit wide bus provides up to 6.4 GB/s maximum bandwidth.
	Server Interface	X4 5.0G PCIe 2.0 provides 2.0 GB/s maximum bandwidth
	SAS Speed	x8 6G SAS provides 4.8GB/s maximum bandwidth
	Cache Memory	40-bit 256MB ECC protected cache (72-bit 512MB BBWC module upgrades available); transportable with battery-backed upgrade
	Logical Drives Supported	Up to 12 logical drives
	Maximum Logical Drive Capacity	Greater than 2TB
	Host Memory Addressing	64-bit, supporting greater than 4GB server memory space
	RAID Support	RAID 6, 6+0 (Advanced Data Guarding) NOTE: The minimum of 256 MB cache, battery kit, and Smart Array Advanced Pack License Key upgrade is required to enable RAID 6, 6+0 RAID 5, 5+0 (Distributed Data Guarding) NOTE: The 256MB upgrade is required to enable RAID 5 support on the Smart Array P410i. RAID 1+0 (Striping & Mirroring) RAID 0 (Striping)
	Upgradeable Firmware	Upgradeable Firmware with Recovery ROM feature

Embedded NC326i PCI Express Dual Port Gigabit Server Adapter	Network Interface	10Base-T/100Base-TX/1000Base-TX	
	Compatibility	IEEE 802.3 10Base-T	
		IEEE 802.3ab 1000Base-T	
		IEEE 802.3u 100Base-TX	
	Data Transfer Method	PCI Express, four lanes (x4)	
	Network Transfer Rate	10Base-T (Half-Duplex)	10 Mb/s
		10Base-T (Full-Duplex)	20 Mb/s
		100Base-TX (Half-Duplex)	100 Mb/s
		100Base-TX (Full-Duplex)	200 Mb/s
		1000Base-TX (Half and Full-Duplex)	2000Mb/s
	Connector	RJ-45	
	Cable Support	10Base-T	Categories 3, 4 or 5 UTP; up to 328 ft (100 m)
		10/100/1000Base-TX	Category 5 UTP; up to 328 ft (100 m)

Environment-friendly Products and Approach	End-of-life Management and Recycling	Hewlett-Packard offers end-of-life HP product return, trade-in, and recycling programs in many geographic areas. For trade-in information, please go to: http://www.hp.com/go/green. To recycle your product, please go to: http://www.hp.com/go/green or contact your nearest HP sales office. Products returned to HP will be recycled, recovered or disposed of in a responsible manner. The EU WEEE directive (2002/95/EC) requires manufacturers to provide treatment information for each product type for use by treatment facilities. This information (product disassembly instructions) is posted on the Hewlett Packard web site at: http://www.hp.com/go/green. These instructions may be used by recyclers and other WEEE treatment facilities as well as HP OEM customers who integrate and re-sell HP equipment.

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For hard drives, 1GB = 1 billion bytes. Actual formatted capacity is less.